REMARKS/ARGUMENTS

No claims have been amended, canceled, or added. Thus, claims 1-20 remain pending.

Claims 1-20 are rejected under 35 USC § 103(a) as being unpatentable over Sze (U.S. PN: 6,092,231) in view of Cox et al. (U.S. PN: 5,946,328).

Claims 1-10

Claim 1 is allowable over Sze and Cox, either alone or in combination, as those references fail to teach or suggest all the elements of claim 1. For example, claim 1 recites:

> *if the first attempt to correct the erroneous data bytes is unsuccessful, the controller adds a long block membership (LBM) byte to the first level CRC and ECC bytes, the LBM byte indicating whether the failed sector is part of a long block that includes a plurality of sectors,*
>
> *the controller performs a second attempt to correct the erroneous data bytes by decoding second level ECC bytes, and*
>
> *if the second attempt to correct the data bytes is unsuccessful, the controller adds the LBM byte to the first level CRC and ECC bytes again and performs a third attempt to correct the erroneous data bytes by decoding the second level ECC bytes to generate corrected data bytes.*

Cox

Cox is directed to summing the codewords from three data streams to create a second level check on the accuracy of the data read from disk (*See Cox*, Abstract lines 5-9), and not to filtering out sectors that do not belong to a long block, such as a sector that has been updated with new data bytes (*See present specification*, paragraph 34).

In Cox, the first two codewords c_1 and c_2 depend separately upon the first two data streams and includes first level check bytes r_1 and r_2 . *See Cox*, col. 4 lines 15-18 and lines 25-27. The third codeword c_3 is created from a sum of all three data streams, the other two codewords, first level check bytes r_3, and second level check bytes r_B. *Id.*, col. 4 lines 15-18 and lines 30-34. The two-level correction scheme uses first level check bytes r_1-r_3 in the codewords to correct errors in a single stream and second level check bytes r_B in the third codeword to correct errors in more than one stream. *Id.*, col. 7 lines 23-25.

In Cox, a fixed number of codewords are used to form a block. *Id.*, col. 2 lines 4-8; lines 13-14 and col. 3 lines 5-7. Thus, a block is formed from a fixed number of codewords, and each codeword is assumed to be part of a block. In Cox, the size of a block is at most one sector (512 bytes). *Id.*, col. 6 lines 10-17. Accordingly, a block only includes one sector, whereas claim 1 recites "*a long block that includes a plurality of sectors*."

Also, Cox does not disclose removing or de-linking one codeword from a block. Since all of the codewords are assumed to be part of a block, there is no mechanism for *"indicating whether the failed sector is part of a long block,"* as recited in claim 1. Specifically, there is no mention of the mechanism being adding *"a long block membership (LBM) byte to the first level CRC and ECC bytes,"* as recited in claim 1.

Furthermore, Cox states "if the syndromes are nonzero or if the RS decoder 429 detects failure. then the r_1 syndromes in the phase that failed and r_2 block syndromes are applied respectively through selector 423 and generator 443 to RS decoder 425." *Id.*, col. 9 lines 57-61. Thus, if the first attempt at correction with first level check bytes is unsuccessful, then immediately afterwards the second attempt is done using the second level check bytes. Cox does not mention adding a long block membership (LBM) byte in between these two attempts, particularly for testing the inclusion of a sector in a long block, as recited in claim 1. There is no need for an LBM byte in Cox as the codewords that once make up a block are always linked to that block.

Additionally, if the second attempt at correction with the second level bytes is unsuccessful, Cox assumes the number of errors is too great and simply issues a signal of noncorrectability. *Id.*, col. 10 lines 13-16. Note that this second attempt is the first attempt using second level bytes. Cox does not mention a third attempt, because there is no need for the second level check bytes to be used initially to test whether the sector is part of a long block. Thus, Cox does not teach or suggest "*a third attempt to correct the erroneous data bytes by decoding the second level ECC bytes to generate corrected data bytes,*" as recited in claim 1.

Note the portions of Cox cited in the Office Action pertain respectively to a generic notion of a two-level scheme (col. 1 lines 8-10) and that the method can be used for

correcting data in devices besides a storage medium, such as in a communication system (col. 10, lines 31-35). Neither of which teach or suggest the above-mentioned limitations.

Sze

Finally, Sze is only cited for teaching the detection of errors with CRC and ECC units. Sze does not teach or suggest a LBM byte, adding an LBM byte to an ECC byte, or aspects of a two-level correction scheme.

For at least these reasons, claim 1 is allowable over the cited references. As claim 1 is allowable, claims 2-10 which depend therefrom are also allowable for at least the same rationale.

Claims 11-20

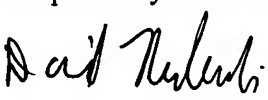
Applicants submit that independent claim 11 should be allowable for reasons mentioned with respect to claim 1. As claim 11 is allowable, dependent claims 12-20 are allowable for at least the same rationale.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,



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